

AMENDMENTS TO THE CLAIMS

Claims 1-25 (cancelled)

26. (Original) An image sensor camera system for converting optical data into digital image data, the system comprising:

an image sensor array having a plurality of sensors, said sensors operating to receive the optical data and integrate the data into electrical charge proportional to the amount of optical data collected with a particular period of time;

a lens system operatively coupled to the image sensor array and configured to carry and focus the optical data onto the image sensor array, said lens system including a plurality of lenses and a cover plate, said cover plate contoured into a lensing structure that changes an imaging characteristic; and

sensor electronics coupled to the image sensor array, and configured to receive the electrical charge, the sensor electronics operating to convert the electrical charge received by the plurality of sensors into the digital image data.

27. (Original) An active pixel sensor system having an active pixel array, the system comprising:

a lensing element configured to receive optical data and change an imaging characteristic, said lensing element providing cover for the active pixel array.

Claims 28 – 31 (Canceled)

32. (New) An assembly for an image sensor device, comprising:

an image sensor array; and

a cover plate operatively disposed over said image sensor array, said cover plate including an integrated lensing structure which is developed to change imaging characteristics of incoming radiation which impinge towards said image sensor array.

33. (New) An assembly as in claim 32, wherein said cover plate includes a mounting structure developed to hold an assembly including additional lensing structures.

34. (New) An assembly as in claim 33, wherein said additional lensing structures include a multiple piece lensing structure which collectively with said integrated lensing structure collects and focuses radiation onto said image sensor array.

35. (New) An assembly as in claim 34, wherein said multiple piece lensing structure includes three lens parts.

36. (New) An assembly as in claim 35, wherein said multiple lens system includes a convex lens, a first plano-convex lens, and a second plano-convex lens.

37. (New) An assembly as in claim 33, wherein said mounting structure includes screw threads.

38. (New) An assembly as in claim 37, wherein said additional lensing structures include a threaded ring.

39. (New) An assembly as in claim 32, wherein said integrated lensing structure forms a concave lens part.

40. (New) An assembly as in claim 32, wherein said integrated lensing structure forms a convex lens part.

41. (New) An image sensor device, comprising:
an image sensor;
image sensor electronics connected to the image sensor; and
a cover part which covers the integrated circuit image sensor, wherein said cover part includes a lensing element formed therein.

42. (New) An image sensor device as in claim 41, wherein said lensing element includes at least one of a refractive lensing element and a diffractive lensing element.

43. (New) An image sensor device as in claim 41, wherein said image sensor includes an active pixel array.

44. (New) A method for controlling Petzval field curvature in a camera system, comprising:

contouring a cover plate to form a lensing structure; and
covering an imaging array with said cover plate, said cover plate being located adjacent said imaging array in an optical path of said camera system, whereby Petzval field curvature is controlled.

45. (New) A method as in claim 44, wherein contouring the cover plate to form the lensing structure includes forming at least one of a refractive lens and a diffractive lens.

46. (New) A method of forming a digital image comprising:
focusing incident light on an imaging array by passing the light through a lensing element formed in a cover plate;
receiving the light as optical data with said imaging array;
integrating the optical data into electrical charges using sensors in the imaging array;
and
receiving the electrical charges with sensor electronics and converting the electrical charge into digital image data.

47. (New) A method as in claim 46, wherein said lensing element is formed to include at least one of a refractive lens and a diffractive lens.